

**In the SPECIFICATION:**

Please AMEND the paragraph on page 15, lines 22-24, as follows:

Now the demultiplexing unit will be described with reference to Fig. 1A. The demodulating demultiplexing unit is comprised of the interleavers 1 – 3 and the demodulators demultiplexers 4 – 7.

Please AMEND the paragraph on page 18, lines 19-26, as follows:

As graph A1 shows, the central frequency of the transmission band at the port A1 side of the interleaver 1 is shifted 12.5 GHz to the lower frequency side (that is, -12.5 GHz) from the frequencies  $f_2, f_2 \underline{f_6}, \dots$  (200 GHz interval) of the ITU-T grid, (in other words, shifted 37.5 GHz to the higher frequency side (that is +37.5 GHz) from the frequencies  $f_1, f_5, \dots$ ). Here it is assumed that the shift amount is  $-50 \text{ GHz} < S < 50 \text{ GHz}$ .

Please AMEND the paragraph on page 21, lines 11-21, as follows:

In the graph A1, B1 at the second level in Fig. 4, the transmission characteristics at the output port A1 side of the interleaver 1 is shown by a solid line, and the transmission characteristics at the port B1 side of the interleaver 2 is shown by a broken line. The graph A1  $\Delta$  B1 at the third level shows the transmission characteristics at the output port B1 side of the interleaver 2 when the port A1 of the interleaver 1 is connected to the input port B0 of the interleaver 2, as described with reference to Fig. 3. This is the same in the graph for A1, B4  $\underline{B_2}$  at the fifth level and for A1  $\Delta$  B4  $\underline{B_2}$  at the sixth level.

Please AMEND the paragraph on page 28, lines 1-7, as follows:

By using such interleavers 12 and 13, only the WDM signals P2 in the channel ch  $[4i - 3]$  are output from the output port B4  $\underline{B_{11}}$ , and only the WDM signals P2  $\underline{P_3}$  in the channel ch  $[4i - 1]$  are output from the output port B2  $\underline{B_{12}}$ . Also only the WDM signals P1 in the channel ch  $[4i - 2]$  are output from the output port C4  $\underline{C_{11}}$ , and only the WDM signals P4 in the channel ch  $[4i]$  are output from the output port C2  $\underline{C_{12}}$ .

Please AMEND the paragraphs on page 28, line 24-page 29, line 6, as follows:

The WDM signals ~~P1 and P2~~ P2 and P3 pass through the interleaver 12, so as to be filtered and multiplexed based on the transmission characteristics (graphs B11 and B12 in Fig. 6 7) of the interleaver 12, and be input to the input port A11 of the coupler 11 from the output port B10.

The WDM signals ~~P3~~ P1 and P4 pass through the interleaver 13, so as to be filtered and multiplexed based on the transmission characteristics (graphs C11 and C12 in Fig. 6 7) of the interleaver 13, and be input to the input port A12 of the coupler 11 from the output port C10.

Please AMEND the paragraph on page 32 lines 1-11, as follows:

As the solid line graph B22 in the fifth level shows, the transmission characteristics of the interleaver 22 at the output port B22 side are the opposite of the transmission characteristics at the output port B21 side, where the central frequency of the transmission band is shifted +37.5 GHz from the frequencies  $f_3, f_7, \dots (f [4i - 1])$ . Also as the graph 25 shows, the transmission characteristics of the demultiplexer 25 are the opposite of the transmission characteristics of the demultiplexer 24, where the central frequency of the transmission band is shifted ~~-37.6~~ -37.5 GHz from the frequencies  $f_3, f_7, \dots$

Please AMEND the paragraph on page 32 lines 22-27, as follows:

As the solid line graph C21 in the eighth level shows, in the transmission characteristics at the port C21 side, the central frequency of the transmission band is shifted -12.5 GHz from the frequencies  $f_2, f_6, \dots$ . The central frequency of the transmission band of the demultiplexer 26 is shifted ~~-12.5~~ +12.5 GHz from the frequencies  $f_2, f_6, \dots$

Please AMEND the paragraph on page 33, lines 10-20, as follows:

As the solid line graph C22 shows, the transmission characteristics of the interleaver 23 at the output port C22 side are the opposite of the transmission characteristics at the output port C21 side, where the central frequency of the transmission band is shifted -12.5 GHz from the frequencies  $f_4, f_8, \dots (f [4i])$ . Also as the graph 27 shows, the transmission characteristics of the demultiplexer 27 are the opposite of the transmission characteristics of the demultiplexer 26,

where the central frequency of the transmission band is shifted  $-37.5 + 12.5$  GHz from the frequencies  $f_3, f_7, f_4, f_8, \dots$

Please AMEND the paragraph on page 34, line 16-page 35, line 3, as follows:

In the multiplexing unit 24, 10 Gbit/s signal lights in the channel ch  $[4i - 3]$  are input and are multiplexed into the WDM signals P2. The WDM signals P2 are input to the input port B21 of the interleaver 22. In the multiplexing unit 25, 10 Gbit/s signal lights in the channel ch  $[4i - 1]$  are input and are multiplexed into the WDM signals P3. The WDM signals P3 are input to the input port B22 of the interleaver 22. In the multiplexer 26, the 40 Gbit/s signal lights in the channel ch  $[4i - 2]$  are input and are multiplexed into the WDM signals P1. The WDM signals P3 are input to the input port C21 of the interleaver 23. In the multiplexer 27, 40 Gbit/s signal lights in the channel ch  $[4i]$  are input and are multiplexed into the WDM signals P4. The WDM signals P4 are input to the input port C22 of the interleaver 23.

Please AMEND the paragraph on page 38, lines 10-11, as follows:

Now the multiplexing unit shown in Fig. 10B will be described in brief.

Please AMEND the paragraph on page 39, line 27- page 40, line 7, as follows:

The demultiplexing unit is comprised of a coupler 11 and demultiplexers 31 and 52. The coupler 11 is the same as that in the second embodiment shown in Fig. 6, which is denoted with the same reference numerals, and the narrowband interleaver 31 is the same as that in the fourth embodiment, which is denoted with the same reference numerals. The signal light P0 is also the same as that described in the previous embodiments.

Please AMEND the paragraph on page 44, lines 13 - 16, as follows:

"For the demultiplexer 65, an AWG filter with a transmission band, where the central frequency is  $f_{10}, f_{40}, f_{80}, f_3, f_6, f_9, \dots$  with a 150 GHz interval and a bandwidth is at least 25 GHz, for example, can be used."

Please AMEND the paragraphs on page 45, lines 9 - 25, as follows:

The graph B62 in the sixth level shows the transmission characteristics of the interleaver 62 at the output port B62 side, and these transmission characteristics are the opposite of the transmission characteristics at the output port B61 side (graph B61). Therefore only 10 Gbit/s signals in channels ch2, ch6, ch10, . . . are output from the output port B62, and the other 10 Gbit/s signals are removed. The 10 Gbit/s signals ~~where were~~ which are output are demultiplexed into the signal lights with respective wavelengths by the demultiplexer 64.

In the multiplexing unit in Fig. 14B, the 10 Gbit/s signals in channels ch1, ch3, ch5, ch7, ch9, ch11, . . . are input to the multiplexer 63, and multiplexed, then are input to the input port B61 of the interleaver 62. The 10 Gbit/s signals in channels ch2, ~~ch4~~ ch6, ch10, . . . are input to the multiplexer 64 and multiplexed, then are input to the input port B62 of the interleaver 62.

Please AMEND the paragraph on page 46, line 26 – page 47, line 3, as follows:

To this demultiplexing unit as well, the WDM signals ~~P0~~ P10, in the same signal array as the sixth embodiment, are input. The WDM signals ~~P0~~ P10, which were input, are branched into two by the coupler 11, and are input to the interleavers 62 and 61 respectively.

Please AMEND the paragraph on page 47, lines 17 – 27, as follows:

Based on the transmission characteristics shown in the fourth level, a part of the 40 Gbit/s signal components r4, r5, r6, . . . are output from the output port B62 of the interleaver 62, in addition to the 10 Gbit/s signals in the channels ch2, ch6, ch10, . . . (see fifth level). The signals and a part of the components which were output are input to the demultiplexer 64, are demultiplexed into each signal, and are output. By not using the output terminals, where a part of the components r4, r5, r6, . . . are output, out of the output terminals of the demultiplexer ~~63~~ 64, these components can be removed.

Please AMEND the paragraph on page 48, lines 6 – 12, as follows:

In the multiplexing unit shown in Fig. 16B, 10 Gbit/s signals in the channels ch1, ch3, ch5, ch7, ch9, ch11, . . . are input to the multiplexer 63, and multiplexed, then are input to the input port B61 of the interleaver 62. The 10 Gbit/s signals in the channels ch2, ~~ch4~~ ch6, ch10, . . .

. are input to the multiplexer 64, and multiplexed, then are input to the input port B62 of the interleaver 62.

Please AMEND the paragraph on page 48, lines 18 – 22, as follows:

The interleaver 62 multiplexes the WDM signals from the multiplexers 63 and 64, and inputs the WDM signals after multiplexing to the coupler 11. The interleaver 61 inputs the WDM signals from the multiplexer 65 to the coupler 11. By this, the WDM signals P0 P10 are output from the coupler 11.